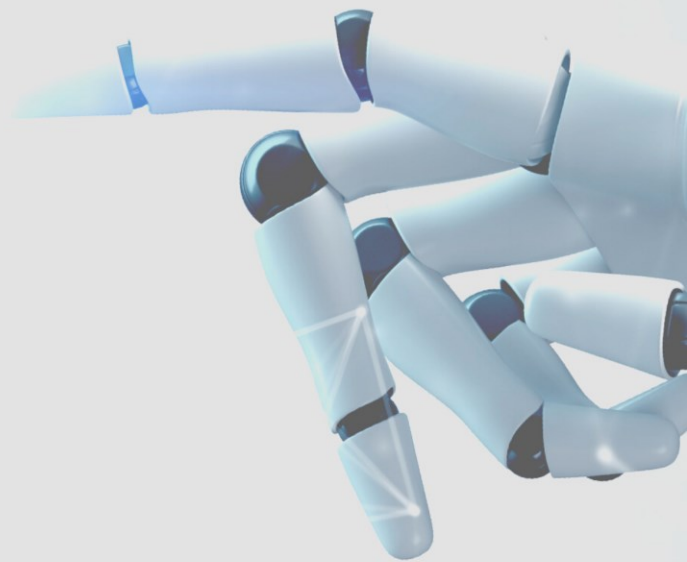


CSA4002

DR. DURGA PRASAD

# HANDS ON lobe



PREPARED BY




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# ABOUT lobe

Lobe is generally used for training the machine learning models. It is a free, easy to use tool.

It is quite convenient to use as it has simplified the **machine learning** process into three easy steps.

-  Collecting and labelling images.
-  Training the model and analysing results.
-  Play, test, improve the model.

# aim

We have to use the lobe machine learning tool and need to train two different models having **binary classification** as well as **multiclass classification**.

# procedure

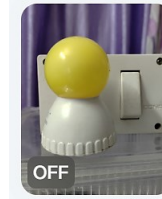
We need to follow the following procedures to get desired results :

1. We need to collect bursts of images using our webcam, or drag in a folder of images from the computer and quickly label images to create a machine learning dataset.
2. Thereafter, the model automatically trains itself on our computer without any setup or configuration. We need to understand the strengths and weaknesses of your model with live visual results.
3. Use the trained model with a webcam or images from your computer. Improve your results by giving your model feedback on its predictions, then finally export it wherever needed.

# results

Using the above procedure to work upon the binary classification and thereafter we need to do the same training for the multiclass classification. We just need to show examples of what you want it to learn, and it automatically trains a custom machine learning model.

# binary classification



Bulb | ON or OFF  
100% correct

Binary classification refers to those classification tasks that have **two class labels**. It generally involves one class that is the *normal state* and another class that is the *abnormal state*.

So, for the above classification we have chosen a dataset which consists two types of images. We are training over model so that it can detect whether the Bulb is **ON** or **OFF**.

We have trained the model with approximately, **60 images** from each of the two classes and the dataset contains a total of **120 images**.

The screenshot displays the LobeLab interface for a binary classification task titled "Bulb | ON or OFF". The interface is divided into two main sections: "OFF" and "ON".

**OFF Section:**

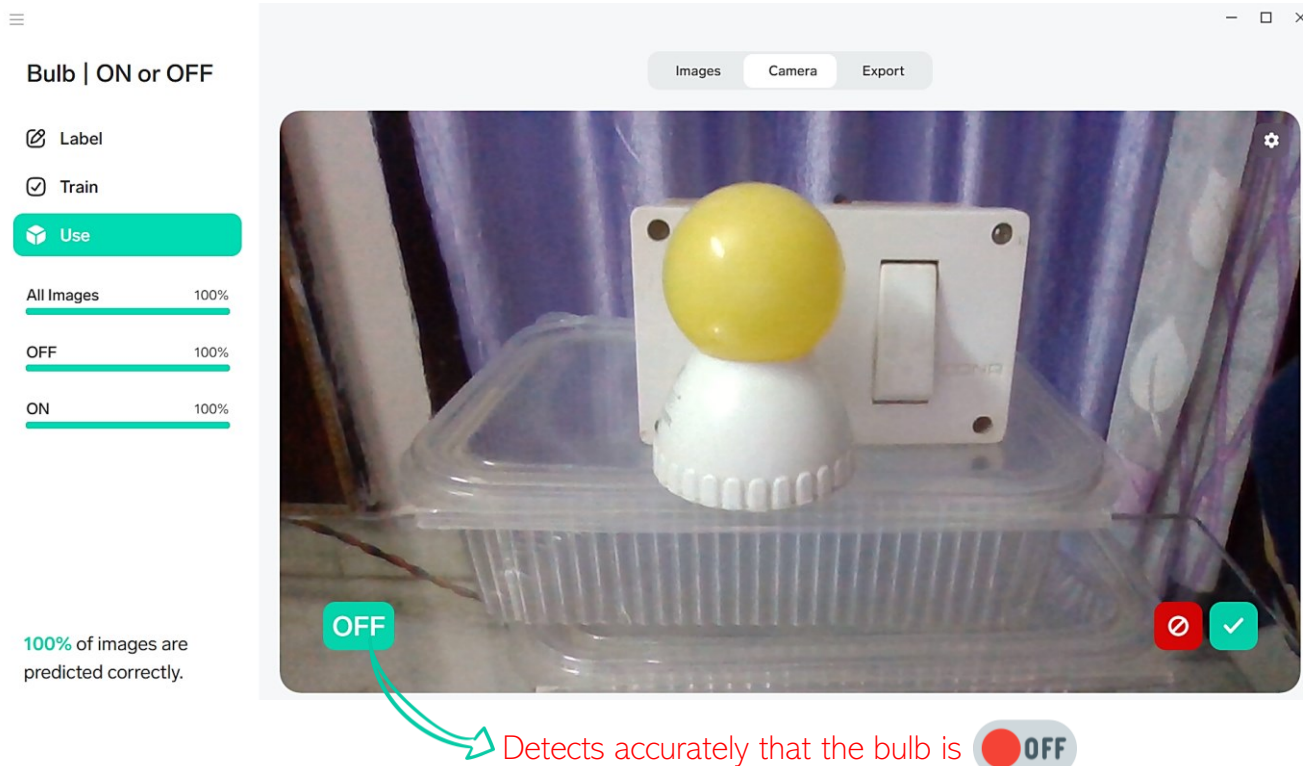
- On the left, a sidebar shows the task name "Bulb | ON or OFF" and a list of actions: "Label", "Train", and "Use". Below these, a progress bar indicates "All Images 120", with "OFF 60" and "ON 60" shown as separate bars.
- The main area displays a grid of 12 images of a yellow light bulb in the "OFF" state, each labeled "OFF". A "Show Less" button is visible in the top right corner.
- At the bottom, a status message states "100% of images are predicted correctly."

**ON Section:**

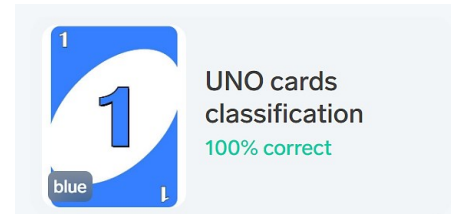
- On the left, the same sidebar is present, but the "ON" bar is highlighted.
- The main area displays a grid of 12 images of a yellow light bulb in the "ON" state, each labeled "ON". A "View" button and an "Import" button are visible in the top right corner.
- At the bottom, a status message states "100% of images are predicted correctly."



Now, the model is trained and predicts the images with 100% accuracy. We will test, play and analyse our model.



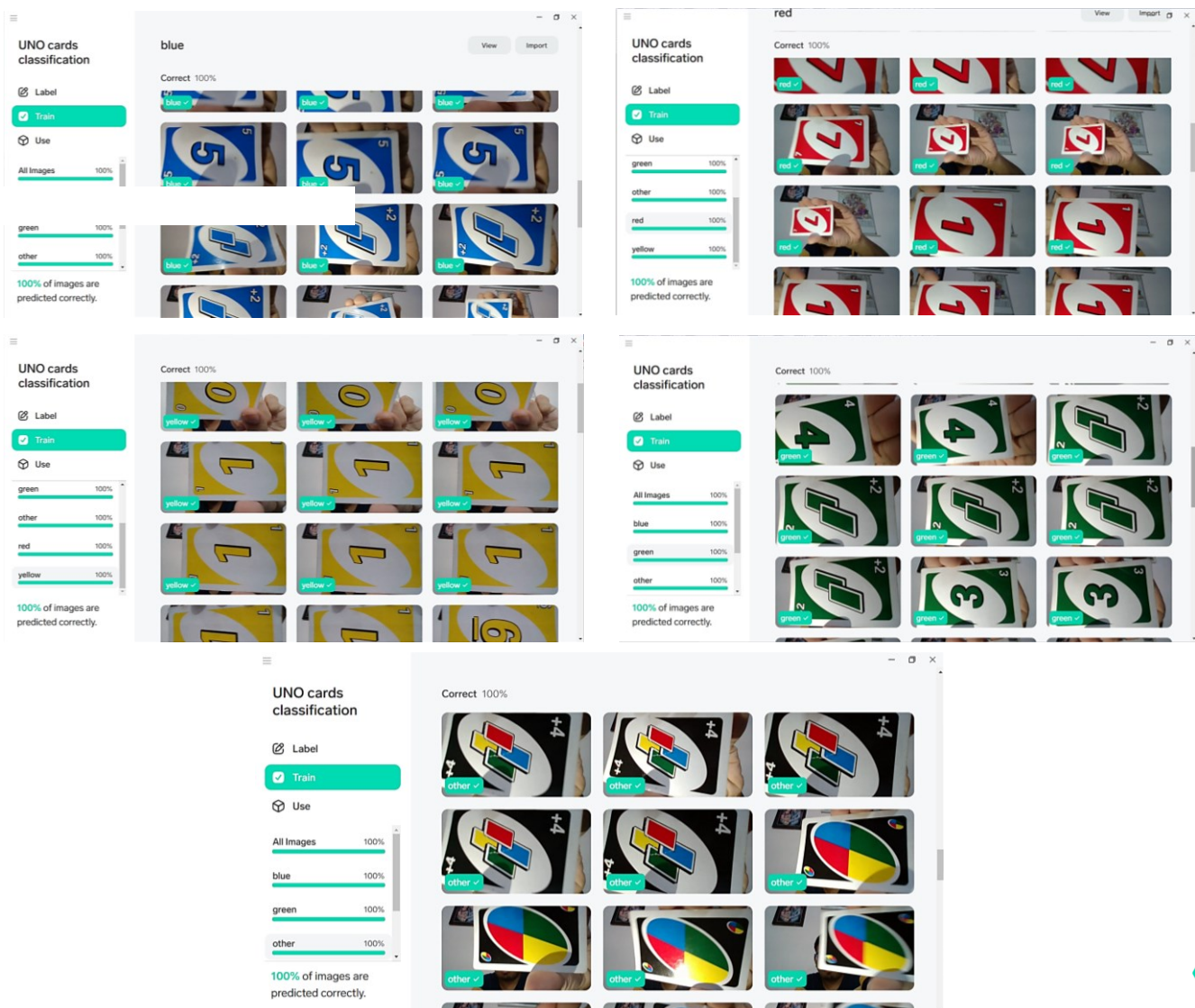
# multi class classification



Multi-class classification refers to those classification tasks that have **more than two class labels**. Unlike binary classification, examples are classified as belonging to one *among a range of known classes*. The number of class labels may be very large on some problems.

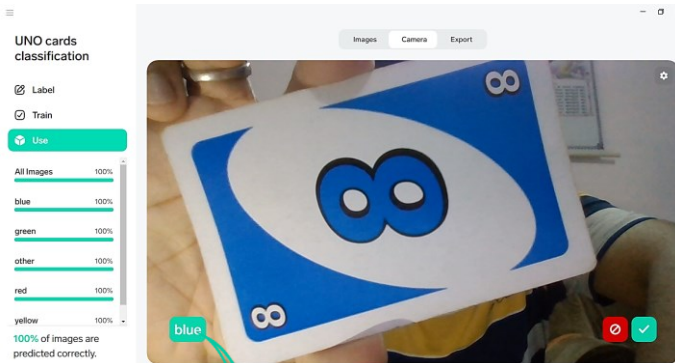
So, for the above classification we have chosen a dataset which consists of variety of UNO cards. We are training over model so that it can detect the colours of different cards into **red, blue, green, yellow** and **other**.

We have trained the model with approximately, **60 images** from each of the five classes and the dataset contains a total of **350+ images**.

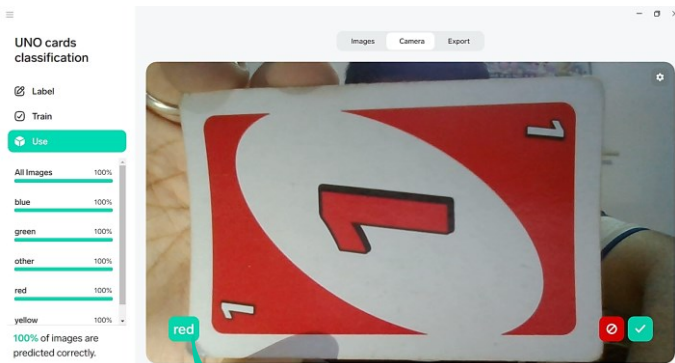




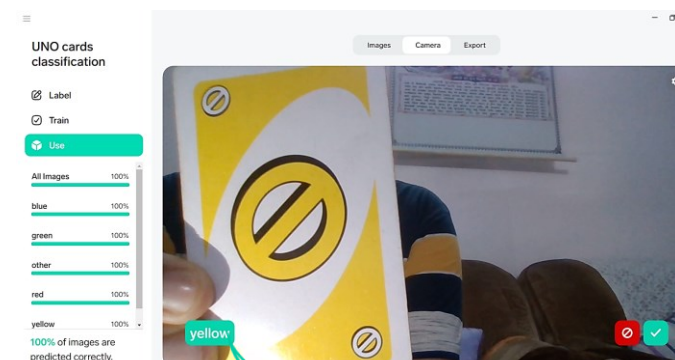
Now, the model is trained and predicts the images with 100% accuracy and we will test, play and analyse our model.



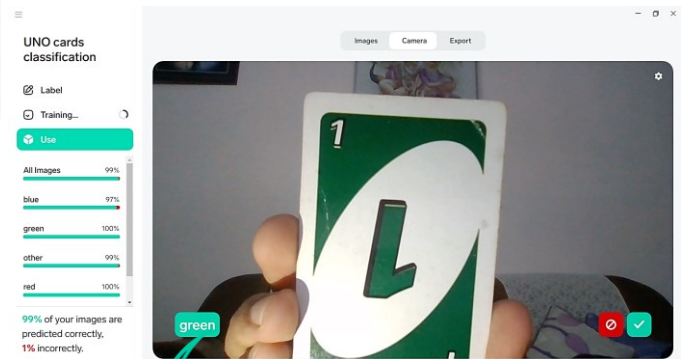
Detects accurately the colour of card as BLUE.



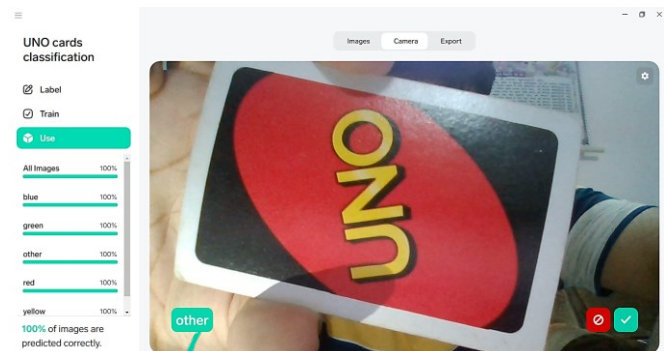
Detects accurately the colour of card as RED



Detects accurately the colour of card as YELLOW.



Detects accurately the colour of card as GREEN.



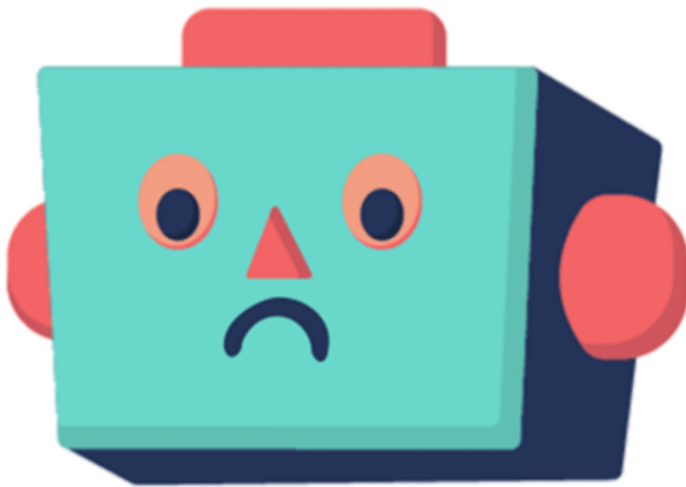
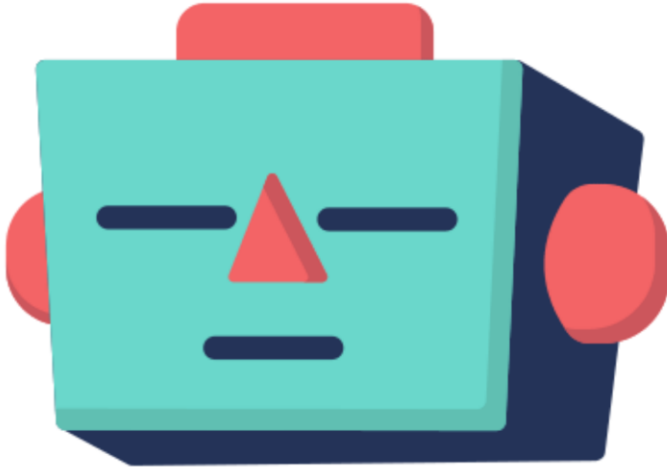
Detects accurately the card as OTHER.

The background features a repeating pattern of stylized, teal-outlined robots of various shapes (circular, rectangular, triangular) with simple facial features. These robots are scattered across a white background with a red dotted grid pattern.

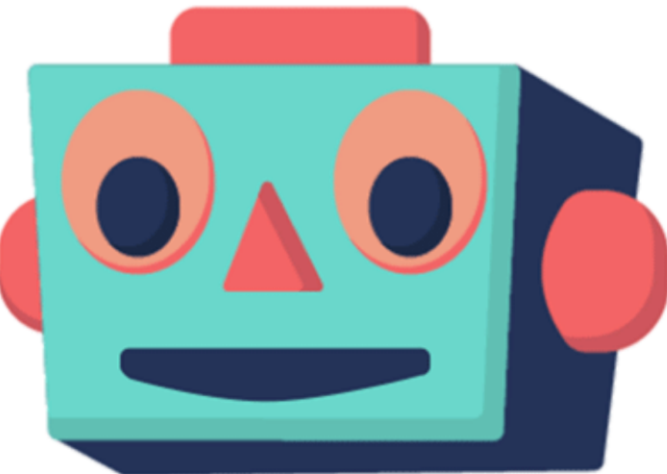
# VIDEO DEMONSTRATION

[Click to View](#)

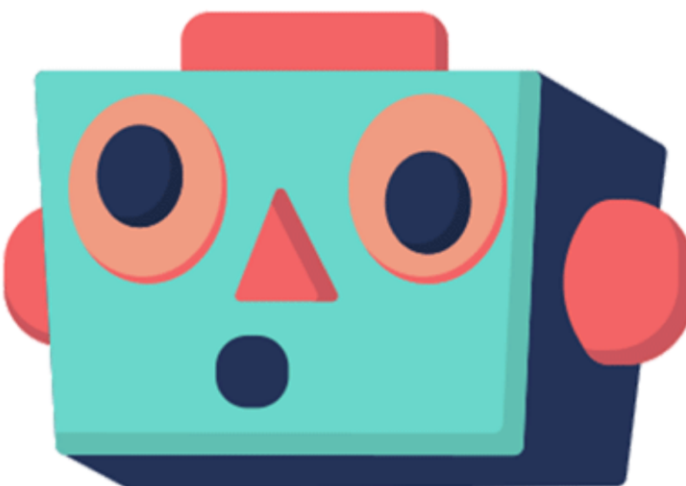




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**submitted on**  
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